STATE SUPERVISION OF ELECTRIC RAILWAYS IN WISCONSIN

By Hon. B. H. Meyer,
Member of Interstate Commerce Commission; Formerly Chairman, Railroad Commission of Wisconsin.

The mileage of electric railways in Wisconsin is comparatively limited. There are about five hundred and ninety-two miles of line and seven hundred and ninety miles of track, of which somewhat less than one-half is located within the limits of municipalities. Construction has been authorized for approximately two hundred and fifty miles more, and several more or less extensive projects are in various stages of development.[1]

Section 2, Chapter 362, of the laws of 1905, being the original Railroad Commission Act under which the present Commission is functioning, provides that the term "railroad" shall include "all corporations and their lessees that now or may hereafter own, operate, manage or control any railroad or part of a railroad as a common carrier in this state, or cars or other equipment used thereon." Subdivision A of said section extends the provisions of the act to the transportation of passengers and property between points within the state, and also to all railroad corporations that ". . . do business as common carriers upon or over any line of railroad within this state, and to any common carrier engaged in the transportation of passengers and property wholly by rail or partly by rail and partly by water."

Subdivision B of the same section provides that the act ". . . shall not apply to street or electric railroads engaged solely in the transportation of passengers within the limits of cities."

Soon after the enactment of this law the attorney for the Milwaukee Electric Railway and Light Company, the largest electric railway system in the state, inquired of the Commission whether or not a street railway company which transacted business as a common carrier partly within and partly without the limits of a

[1]For detailed statistics of the results of operation of electric railways in Wisconsin, see third annual report of the Railroad Commission of Wisconsin, part 3, pages 600 to 674.

municipality is subject to the provisions of Chapter 362 with respect to both urban and suburban business. Specifically, the question was whether the Milwaukee Electric Railway and Light Company was required to report accidents occurring on its lines within the city limits, it being apparently conceded that the statute required it to report accidents occurring outside the city limits.

The Commission concluded that any street railway company that is not solely engaged in the transportation of passengers within the limits of a city is subject to Chapter 362 of the laws of 1905, both as to its urban and suburban and interurban business, and that the reports of accidents should include both classes of business. The peculiar language of the law, the circumstances under which the statute was enacted, the probable intent of the legislature, and court decisions throwing light upon the construction of the statute, are discussed in the decision of the Commission officially disposing of the inquiry with the aforesaid conclusions.[2]

The law of 1905, as construed by the Commission, therefore gave the Commission the same jurisdiction over electric railways that it conferred with respect to steam railways. However, since there was some doubt regarding the extent of jurisdiction conferred, the legislature of 1907 amended the original law by making the act apply also to "all street and interurban railway companies." This amendment left no doubt regarding the complete jurisdiction of the Commission. It has never been questioned since.

In addition to the basic railway statute as amended, there are special acts applicable to electric railways relating to the heating of cars, waiting rooms, fenders, power brakes, the issue of securities, authority to construct, etc. These acts are supplemental to the general railroad law and together with the latter comprise a regulatory code which is as broad as the business. I assume that it is not intended that I should discuss the general principles of the railway legislation of Wisconsin in this place, but confine myself to certain aspects of the law as it has been applied to electric railways. While the mileage of electric railways in Wisconsin is relatively small, the legislation applicable to it is comprehensive enough, it seems, for a mileage as extensive as any that can be created within the boundaries of a state. The legislative and administrative problems are the same as they would be if the mileage in the state were the most extensive of any in the Union.

[2] 1 W. R. C. R., 178 to 191.

The first of the more important cases relating to electric railways was brought before the Commission during the fall of 1906, and embraced practically all the phases of the service within the city of Milwaukee and certain suburbs. A separate complaint related to the alleged discrimination in the arrangement of fare zones between Milwaukee and one of its suburbs. While the absolute reasonableness of the rate was challenged in each case, by stipulation the latter question was held in abeyance pending a valuation of the property of the respondent's lines and the necessary statistical investigation by the Commission. While the service cases were decided within the following year, the rate cases are still pending. The valuation has been completed, analyses made, and unusually voluminous proceedings terminated. The attorneys are at present engaged, we are advised, in the preparation of their respective briefs, and the matter will naturally come up again before the Commission for argument as soon as these preparations have been completed.

The service cases related to overcrowding, lack of cleanliness in the cars, improper routing of cars, failure to sell certain classes of tickets on cars, failure to install power brakes and properly guard certain crossings, and similar matters. All of these questions are disposed of in the decisions which the reader may find in 1 W. R. C. R. 662 to 688, and 1 W. R. C. R. 689 to 711.

Although many of the matters referred to in these first complaints had apparently been met by the Commission, complaint regarding certain minor matters relating to the service continued to come to the Commission with such persistence that it was decided to institute a comprehensive and thorough investigation of the service situation in Milwaukee by the Commission on its own motion.

The field work of this investigation was begun in October, 1908, and from this date to March, 1909, from two to five men were kept constantly in the field making observations upon service conditions. A final report covering the investigation was made in June, 1909. This report was directed to three chief phases of the problem, viz., (1) the extent of service given by the company, (2) the service required by the traveling public, (3) the necessary reroutings of the various lines in order to avoid present conditions

of congestion in the down-town district and to obtain better accommodations for certain classes of traffic.

Upon completion of the work in June, 1909, the following suggestions were made to the company for the improvement of the service:

(1) The adoption of re-routing schemes which were submitted in detail in the report.

(2) Providing a sufficient number of cars to take care of the traffic on the various lines which were overcrowded at periods shown in the report.

(3) Establishing definite stopping places at street intersections suitable for all conditions of travel.

(4) Making service stops on both sides of important transfer points.

(5) Soliciting the co-operation of the public through the medium of proper signs posted in the car.

(6) Exacting greater courtesy on the part of trainmen.

(7) Endeavoring to train the public to move on and off cars in a more systematic manner.

(8) Better supervision of cars at the various street railway intersections.

(9) Requiring the trainmen to be more alert in saving time at intersections and to act more promptly upon the supervisor's orders.

(10) Insisting that trainmen do not shirk by running their car so that the one ahead or the one behind will receive the passengers.

(11) Using more care in maintaining proper headway or spacing between cars.

It was also suggested that the public could co-operate with the company in improving the service as follows:

(1) By readily complying with the requests of conductors; for example, stepping forward promptly when requested, etc.

(2) By not unnecessarily crowding the vestibules and aisles of the cars.

(3) By exercising more promptness in leaving and boarding cars.

(4) By general co-operation in other details.

Proposals for the future were also made which involved new track upon various streets. The re-routing scheme also involved considerable new track as well as changes in the routing of some of the car lines in the down-town district.

The final report consisted of approximately fifty pages, and there were submitted in supplementary detail, about three hundred pages of field data, diagrams, schemes for re-routing, car demand curves, investigations as made in other cities, studies of transfer data, movement of passengers, etc.

After a few observations had been taken, it was noted that the times of greatest travel were 6.00 to 9.00 a. m., 11.00 a. m. to 2.00 p. m., 5.00 to 8.00 p. m., and from 10.00 to 11.00 p. m. These intervals were designated periods one, two, three and four. The observations were then confined mainly to the above periods of traffic, it being assumed that any scheme which would handle the periods of maximum travel would prove entirely adequate at any other period of the day. It was soon found that the travel during period four was not of such extent but that it could be easily handled by the routing system then in use, or any other which might be put in force. It was therefore omitted from the further investigations.

The fourteen main lines of the street railway system were then investigated in detail under each of the remaining periods. Inspectors collected data as to the number of passengers riding, the number of cars, the time of arrival of cars, and such similar information as would be of value in dealing with the traffic conditions. For a number of days traffic on one line would be observed in order to find the average number of people riding upon the line, the amount of overcrowding, if any, the destination of the passengers, and other matters of similar nature which would make the inspectors entirely familiar with the conditions.

From a total of nine thousand cars observed, it was noted that quite a number of the people riding preferred to stand even when seats were available, and this tendency seemed to follow a fixed law. In fact, observations showed that in 1,499 cars an average of two people stood by preference when only ten to fourteen people were on the car. In 1,483 cars observed, three people stood when there were only fifteen to nineteen passengers. In 1,411 cars observed, four people stood out of twenty to twenty-four riding.

Five were observed to stand in 1,137 cases where there were from twenty-five to twenty-nine people on the car. Six stood in 867 cases when the car contained thirty to thirty-four people. An average of seven remained standing in 703 cars observed which contained from thirty to thirty-nine people, and finally, in 392 cases, in which there were from forty to forty-two passengers on the car, eight of these stood by preference. Therefore, for a car having a seating capacity of forty-two people (the size of the street car in general use in Milwaukee), a "comfortable load" was taken as fifty passengers, on the assumption that if eight people preferred to stand, even if seats were provided for them, it was therefore unnecessary to provide seats for these eight people. A car which afforded seats for forty-two people could then be called upon to carry a load of fifty people "comfortably" under these conditions.

A number of reasons might be suggested as explaining this preference of a number of passengers to stand rather than to sit down in available seats. The passengers may wish to stand on the rear platform and smoke, they may prefer to stand on the front platform for observation, or they may have been sitting down all day and prefer to stand for that reason, or having only a short distance to ride, they may not care to go to even the slight trouble of searching for one of a number of available seats. In fact, there is a wide variety of reasons why a number of the passengers should prefer to stand rather than to avail themselves of seats, and this tendency, as shown above, seems to obey a general law.

Having determined a "comfortable load unit" for the car, the next question to determine was the number of cars required for the service. This was solved by observing the number of people riding during the maximum periods of travel upon each of the fourteen lines above mentioned. The average number of people on the cars for these periods was plotted, and where these averages exceed fifty people, it denoted that the cars were more than "comfortably" filled. From these determinations, the extent and duration of the overcrowding readily became known, and the number of extra cars needed was readily determined.

It was discovered that a considerable amount of overcrowding was due to the distorted headway or time-spacing between cars. If the line were operated upon a five-minute headway, the cars were each supposed to be spaced that time interval apart, or, in

other words, if one car passed a certain point on this line five minutes were supposed to elapse before another car would pass the same point. This headway was often considerably distorted, owing to the fact that various running speeds were observed; people in boarding or leaving would detain a car longer than was necessary; a drawbridge might be open, or the motorman himself might be careless in controlling the speed of his car so as to maintain a proper headway. The result of this was that two cars might follow each other just a square or so apart, while from eight to ten minutes might elapse before another car came along. The first and third cars, in this event, might become considerably overloaded.

After each line had been studied in considerable detail in the effort to ascertain just what the requirements of the traffic were regarding the proper number and headway of cars, the matter of the destination of passengers was then considered. The entire territory embraced by the various lines was divided into different districts. A study was then made of the character of the traffic, the districts served, etc. In an effort to ascertain the destination of the average passenger to further aid in this consideration, a complete set of transfers for the entire day was obtained, and by going over these in connection with the "car demand curves," the origin and the destination of the average passenger on each line were determined. This was necessary in order to ascertain the re-routing required to thus serve the demands of the public. As an example of some of the data which resulted from these latter observations, it was found that a very considerable percentage of the morning and evening traffic in the western and northwestern part of the city of Milwaukee had a final destination in the southwestern part of the city, or the other side of the Menomonee valley. It was necessary for these passengers to travel through the down-town congested district, across the Menomonee valley at West Water Street, and then proceed westward out along the National Avenue or some similar line. This necessitated a couple of miles of unnecessary travel with the consequent loss of time, which could have been saved if the traffic were routed across the valley direct at some more western point.

A large number of the car lines considered passed the important intersection at Third Street and Grand Avenue. This point

is the most congested part of the city, and with the teaming, pedestrian traffic, likelihood of drawbridges being open, etc., it forms a point where cars were very likely to be delayed a considerable period. To avoid this difficulty, it was proposed to re-route several of the lines in the down-town district so as to make it unnecessary to cross this intersection, but yet bring the cars to within a short distance of this point and thereby relieve the congestion.

Another point covered in the investigation was the movement of passengers in alighting from and boarding cars. It was noted that passengers in Milwaukee were slow in alighting from and boarding cars as compared with the average passenger in other cities. Observations were made in St. Louis, St. Paul, Minneapolis, Duluth, and Indianapolis. It was determined that during the evening peak in the down-town districts of Milwaukee, it required on the average one and a half seconds per passenger to board a car when ten passengers were getting on. This contrasted with 1.37 seconds in Duluth and St. Louis, where pay-as-you-enter cars are used, 1.25 seconds in Minneapolis, 1.20 seconds in St. Louis and St. Paul, and 1.02 seconds in Indianapolis. When five people boarded a car, the average in Milwaukee was also longer than in any other city. At Indianapolis five people would board a car in an average of 1.25 seconds per passenger, while at Milwaukee 2.12 seconds were required. And even when fifteen passengers were boarding a car, there was considerable difference in the time required by the average passenger between Milwaukee and other cities investigated. As a matter of fact, the best time made at Milwaukee was approximately 1.20 seconds per passenger, no matter how large the crowd, while the other cities attained an average of approximately .8 seconds per passenger when from fifteen to twenty people or more boarded the car.

At the first glance it would appear that this slowness was due entirely to the passengers themselves, but upon investigation it was ascertained that the company was partly to blame, due to its having no definite established stopping places for its cars. For instance, a car might stop exactly on the other side of the crossing, while the car following might stop a car length or so past this point. The people would generally congregate at a certain place, expecting to board the car there, and when the car proceeded thirty or forty feet past this point, it was necessary for them to walk

or run to it. This caused a delay, and thus required considerably more time in boarding the cars than would otherwise be the case.[3]

While this is a very brief statement of the Milwaukee investigation, it will probably serve to illustrate the manner in which the Wisconsin Commission endeavors to administer regulatory statutes relating to electric railways.

A large number of formal and informal complaints relating to electric railway systems in all parts of the state have been filed with the Commission from time to time, and decided in due course. These complaints involve all phases of rates and service, and scarcely deserve enumeration in detail.

In the case of one complaint alleging the abandonment of a branch line of a street railway system within the municipal limits, it was shown that the enterprise of the respondent had been a losing proposition from its inception, and that especially on the branch line in controversy operating expenses exceeded the revenue. The Commission took the position that if a railway system does not earn sufficient revenue to cover the cost of operation and maintenance because one or more branches of the system cannot be operated except at a loss which more than counterbalances the profits of the rest of the system, the interests of the public may be best subserved by the abandonment of such branch or branches. The Commission concluded that the respondent in this case was unable to assume any greater financial burden than it was then carrying, and that this and other facts in the case forbade any action on the part of the Commission looking toward a restoration of service on the abandoned branch. (4 W. R. C. R. 757-765.)

A complaint emanating from another city alleged that an ordinance allowing the respondent to abandon and take up its tracks on a certain street and providing for an extension to take the place of such abandoned track, is unreasonable, in so far as it allows the respondent to abandon and take up said track. This track was taken up prior to the filing of the petition. The Commission held that it had no authority to authorize the construction or extension of any electric railroad within a city, or prevent the abandonment or change of location of any part of such a railroad instituted under a franchise granted by the common council, after the consent of the council had been obtained. (3 W. R. C. R. 292.)

[3]Third Annual Report. R. R. Com. Wis., pp. 117 to 127.

In a recent decision declaring the construction of a certain electric railway to be a matter of public convenience and necessity, the Commission gave notice that it would not authorize the construction of fragments of a larger system for the purpose of crippling existing enterprises or exploiting the most profitable parts of a route, but that only the whole of such systems could receive the sanction of the Commission. (*In re* application of M. & F. R. V. Ry. Co. for certificate of convenience and necessity.)

The purpose of these paragraphs has been to describe, without detail, the state supervision of electric railways in Wisconsin. The methods followed in this state, and the results accomplished, may be of aid to other states.